

CURRICULUM VITAE

April 2004

PERSONAL INFORMATION

Name:	Ruiwen Zhang, M.D., Ph.D., D.A.B.T.
Citizenship:	---
Marital Status:	---
Business Address:	The University of Alabama at Birmingham Department of Pharmacology and Toxicology VH 113, Box 600 1670 University Blvd. Birmingham, AL 35294-0019
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EDUCATION

---	M.D. (with honor) , Shanghai Medical University (SMU).
---	Ph.D. (Toxicology and Occupational Epidemiology), Shanghai Medical University (SMU).
---	Post-Doctoral Fellow/Clinical Pharmacology Fellow , University of Alabama at Birmingham (UAB).

BOARD CERTIFICATION

---	Diplomate, American Board of Toxicology (D.A.B.T.)
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EMPLOYMENT

2002-Present	Scientist, Center for Aging, UAB
2001-Present	Scientist, Gene Therapy Center, UAB
1999-Present	Associate Professor (tenured), Clinical Pharmacology, Pharmacology and Toxicology, UAB
1999-Present	Director, Cancer Pharmacology Laboratory, UAB School of Medicine
1999-Present	Scientist, UAB Comprehensive Cancer Center
1999-Present	Scientist, UAB Center for AIDS Research
1998-Present	Member, UAB Chemoprevention Center

1995-Present	Faculty Member, MD/PhD Program, UAB School of Medicine
1992-Present	Graduate Faculty Member, UAB Graduate School
1994-1999	Assistant Professor (tenure-track), Clinical Pharmacology, Pharmacology and Toxicology, UAB
1992-1999	Associate Scientist, UAB Comprehensive Cancer Center
1992-1999	Associate Scientist, UAB Center for AIDS Research
1992-1994	Research Assistant Professor, Clinical Pharmacology, UAB
1989-1992	Clinical Pharmacology Fellow/Research Associate, UAB
1988-1991	Assistant Professor, Toxicology and Occupational Medicine, SMU
1983-1988	Research/Teaching Associate, Toxicology, SMU
1981-1983	Intern, SMU Teaching Hospitals

TEACHING EXPERIENCE

1992-	Department of Pharmacology and Toxicology, UAB
	<p>Lecture: <i>Pharmacogenetics</i> (Graduate Pharm I) <i>Clinical Pharmacology</i> (Clinical Investigator Training Course) <i>Antisense Gene Therapy</i> (Pathology Graduate 790) <i>Cancer Chemotherapy</i> (Medical/Dental/Optomerty Pharmacology) <i>Antifungal Chemotherapy</i> (Medical/Dental/Optomerty <i>Regulatory Toxicology</i> (Graduate Toxicology 712) <i>Good Laboratory Practice</i> (Graduate Toxicology 712) <i>Clinical Toxicology</i> (Medical Pharmacology) <i>Drug Design</i> (IBS)</p> <p>Course Director: <i>Modern Drug Design and Development</i> (PHR725) Lectures (8) for this Course: <i>Introduction to Drug Design and Development; Rational Drug Design; In vitro Pharmacology; In vivo Pharmacology and Disease Models; New Approaches to Non-Clinical Biodisposition Studies; GLP/GMP/GCP; Clinical Pharmacology in Drug Development; Contract Research.</i></p>
1990-	Division of Clinical Pharmacology, UAB Laboratory/experimental training for graduate and medical students, visiting scholars, and postdoctoral fellows

1985-89 Shanghai Medical University, Schools of Medicine and Public Health
 Coursemaster: *Toxicology*
 Occupational Medicine
 Lecture: *Biostatistics*
 Molecular Epidemiology

RESEARCH FUNDING

Current Funding ---- NIH

1. NIH/NCI (R01 CA 80698): MDM2 Oncogene as a Target for Modulating Cancer Therapy. **PI: Ruiwen Zhang, M.D., Ph.D.** (30% effort); 04/01/99-3/31/2004; \$997,298.
2. NIH/NCI (N01CN85183): Randomized, double blind, placebo controlled phase II trial of celecoxib in subjects with actinic keratoses. PI: Craig Elmetts, M.D., **Pharmacology PI: Ruiwen Zhang, M.D., Ph.D.** (5% effort); 9/30/98-10/01/2004. Total costs: \$1,770,000.
3. NIH/NCI: Preclinical Pharmacological Studies of Antitumor and Anti-HIV Agents. (N01-CM-07111). **PI: Ruiwen Zhang, M.D., Ph.D.** (15% effort); 12/1/99-11/30/2004. Total costs: \$750,000.
4. NIH: Phthalocyanine PDT: In Vivo Responses and Mechanisms. P.I.: Craig A. Elmetts, M.D. (R01 CA 86172). **Co-Investigator: Ruiwen Zhang, M.D., Ph.D.** (10% effort); 03/01/2000-02/28/2005. Current year: \$288,000.
5. NIH: Breast Cancer SPORE. P.I.: K Bland, M.D. (P50 CA89019), **Co-Investigator: Ruiwen Zhang, M.D., Ph.D.** (5% effort); 03/01/2000-02/28/2005.

Current Funding ---- Industry and Other Sources

1. ---: Disposition of Oligonucleotides: Pharmacology and Toxicology. **PI: Ruiwen Zhang, M.D., Ph.D.** (--- effort); 8/1/93-7/31/2004; \$ ---
2. ---: ---: **P.I.: Ruiwen Zhang, M.D., Ph.D.** (--- effort); 07/01/00-; Annual Direct Costs \$---.
3. ---: Pre-clinical Evaluation of Antisense Anti-XIAP Oligonucleotides in PC-3 Model. **PI: Ruiwen Zhang, M.D., Ph.D.** (--- effort). 11/01/2002-10/30/2003. Direct Costs: \$---.
4. ---: A Phase I and Pharmacologic Trial of Sequential Administration of Bi-weekly Gemcitabine as a 24-hour IV infusion followed by Irinotecan as a 24-hour IV Infusion in Adult Cancer Patients. PI: ---. **Co-PI: Ruiwen Zhang, M.D., Ph.D.** (--- effort); 1/28/2003-1/27/2006. Direct Cost for Dr. Zhang's lab: \$---.

5. ---: Dexamethasone in Lung Cancer. P.I.: ---, **Co- P.I.: Ruiwen Zhang, M.D., Ph.D.** (--- effort); 03/01/2003-02/28/2007.

Past Funding

1. NIH/NCI (CA-40530): Mechanism of Toxicity of Fluoropyrimidines. PI: Robert B. Diasio, M.D., **Co-PI: Ruiwen Zhang, M.D., Ph.D.** (20% effort); 7/1/88-6/30/96; \$1,055,458.
2. ---: Clinical Investigation of Dihydropyrimidine Dehydrogenase in Cancer Patients. PI: ---, **Co-PI: Ruiwen Zhang, M.D., Ph.D.** (---); 01/01/94-12/31/95; \$--.
3. NIH/NCI (CA 62164): Genetic Polymorphism of Dihydropyrimidine Dehydrogenase. PI: Robert B. Diasio, M.D., **Co-PI: Ruiwen Zhang, M.D., Ph.D.** (20% effort); 12/09/93-11/30/97; \$942,193.
4. ---:Plasma- and Serum-Protein Binding of BCX-34.**PI: Ruiwen Zhang, M.D., Ph.D.** (--- effort); 10/1/95-9/30/96; \$---.
5. ---: Phase I/IIa Study of Sequential Ifosfamide and Topotecan in Patients with Small Cell Lung Cancer. PI: ---, **Co-Investigator: Ruiwen Zhang, M.D., Ph.D.** 01/01/97-12/31/99; \$---.
6. ---: Phase I/IIa Study of Cisplatin, Dexamathasone and a 24-hour infusion of Gemcitabine in patients with relapsed or Refractory Non-Hodgkin's Lymphoma. PI: ---, **Co-Investigator: Ruiwen Zhang, M.D., Ph.D.** 12/01/97-12/31/99; \$---.
7. ---: Clinical Study of Time-dependent Therapeutic Effects and/or Toxicity of Zidovudine (AZT) in AIDS Patients. PI: ---; **Co-Investigator: Ruiwen Zhang, M.D., Ph.D.** 12/01/97-12/31/99; \$---
8. ---: Phase I Dose Escalation Study of Taxotere and Continuous Infusion of Topotecan in Patients with Advanced Malignancies. PI: ---, **Co-Investigator: Ruiwen Zhang, M.D., Ph.D.**, 05/01/98-4/30/00; \$---
9. ---. (IDEC132-01 Phase I): Phase I Study of 9-Amino-camptothecin in Patients with Solid Tumors (Pharmacology Study). **PI: Ruiwen Zhang, M.D., Ph.D.** (--% effort); 12/01/97-11/31/2000; \$---.
10. NIH/NCI (N01 CN65024): A Phase II Trial of Sulindac in Patients with Cervical Intraepithelial Neoplasia (CIN) Grade 3 -Histological Reduction of CIN 3 and Modulation of Surrogate Endpoint Biomarkers.PI: Ronald Alvarez, M.D., **Pharmacology PI: Ruiwen Zhang, M.D., Ph.D.** (5% effort) 09/30/96-9/29/98; \$629,074 (Extension to 10/1/2001 with additional support).

11. ---: Phase II Study of 9-Aminocamptothecin in Patients with Solid Tumors (Pharmacokinetics/ Pharmacodynamics Study). **PI: Ruiwen Zhang, M.D., Ph.D.** (--- effort); 05/01/98-4/30/2001; \$---.
12. NIH/NCI (U01CA76607): Therapeutic Studies of Anaplastic Gliomas. PI: Steven Rosenfeld, M.D., **Co-Investigator: Ruiwen Zhang, M.D., Ph.D.**, 04/01/98-3/31/2002; Yearly Costs: \$102,923.
13. NIH/NCI: Evaluation of Chemopreventive Agents by in vitro Techniques. (NCI-CN-85093-63). PI: Donald Hill, Ph.D., **Co-PI: Ruiwen Zhang, M.D., Ph.D.**; 7/1/99-6/30/2003. (Master Agreement)

Pending Grant Applications

Proprietary information has been deleted.

MEMBERSHIPS

American Society for Clinical Pharmacology and Therapeutics (ASCPT)
American Association of Pharmaceutical Scientists (AAPS)
American Society for Biochemistry and Molecular Biology (ASBMB)
American College of Toxicology (ACT)
American Association for Cancer Research (AACR)
Fellow, Molecular Medicine Society
American Society for Microbiology (ASM)
American Chemical Society (ACS)
Drug Information Association (DIA)
American Association for the Advancement of Science (AAAS)
International Society for Nucleosides, Nucleotides, and Nucleic Acids (IS3NA)
Society of Chinese Bioscientists in America (SCBA)

AWARDS AND HONORS

- Distinguished Medical Student (SMU, ---, ---, ---, ---, ---)
- Outstanding Student of Shanghai (---, ---)
- Rong-Lin Medical Prize (Distinguished Medical Graduate, First Place, SMU, ---)
- Natural Science Research Grant -- *Toxicology of Formaldehyde* (China, 1986-88)
- Excellent Publications Awards (2) -- *Toxicology of chlordimeform* (China, 1987)
- Excellent Publications Award -- *Toxicology of Formaldehyde* (China, 1990)
- National Research Awards -- *Toxicology and Occupational Health of Formaldehyde* (Ministry of Labor, China, 1992)
- Member, Board of Directors, Association of Retard Citizens of Jefferson Co.(1994-97)
- International Leadership -- American Biographic Institute, 1994
- Board Member, Research -- American Biographic Institute, 1994-
- Senior Advisor to the Director General -- National Institute for the Control of Pharmaceutical and Biological Products, Ministry of Health, P.R. China, 1996-1999
- Adjunct Professor -- National Institute for the Control of Pharmaceutical and Biological Products, 1996-1999

- Visiting Professor -- National Academy of Medical Sciences, Beijing, China (Supported by a grant from China National Science Foundation), 1997-
- Faculty Sponsor for ASCPT Presidential Trainee Award (---), 1998
- Visiting Scientist, National Clinical Pharmacology Program, Baylor College of Medicine, Houston, TX, 1999
- Faculty Sponsor for ASCPT Presidential Trainee Award (---), 2000
- Faculty Sponsor for 2000 International Society of Predictive Oncology (ISPO) Travel Award (---), 2000
- Faculty Sponsor for 2000 UAB Medical Student Research Competition and National Competition Travel Award (---, First Place), 2000
- Faculty Sponsor for 2001 National Medical Student Research Forum (---, Best paper on Oncology), 2001
- Faculty Sponsor for 2003 Graduate Student travel Award (---), UAB
- Faculty Sponsor for 2004 Outstanding Graduate Student (---), UAB
- Faculty Sponsor for 2004 Outstanding International Student (Academic Excellence) (---), UAB

Federal/National/International Review Panel/Study Section

- Reviewer, DOD Research Programs, 2000
- Reviewer and Study Section Member, Michigan Life Science Corridor, 2000
- DOD Breast Cancer Research Program, Panel Member (MBG-4, Molecular Biology and Genetics-4, 2002;
- DOD Breast Cancer Research Program, Panel Member (Pathobiology 5, 2003)
- DOD Breast Cancer Research Program, Panel Member (Ad hoc panel-2, 2003)
- NIH Study Section ZRG1 SSS-1 10B (Diagnosis and Treatment of Cancer), 2002-
- Reviewer, Cancer Research UK (2003)
- US FDA Consultant, Clinical Chemistry and Clinical Toxicology Devices Panel, Medical Devices Advisory Committee, Center for Devices and Radiological Health, FDA (2004-2008)
- DOD Prostate Cancer Research Program, Panel Member (Cell biology 3, 2004)
- DOD Breast Cancer Research Program, Panel Member (MBG-3, Molecular Biology and Genetics-3, 2004)
- DOD Breast Cancer Research Program, Panel Member (Pathobiology 5, 2004)

EDITORIAL BOARD

Member, Editorial Advisory Board, *Journal of Current Cancer Drug Targets* (2000-)
Executive Guest Editor, *Journal of Current Cancer Drug Targets* (2001)
Member, Editorial Advisory Board, *Letters in Drug Design and Discovery* (2002-)
Member, Editorial Advisory Board, *Medicinal Chemistry Reviews -Online* (2003-)
Member, Editorial Advisory Board, *Drug Design Reviews -Online* (2003-)
Member, Editorial Committee for Pharmacology, *Foxwell & Davies* (2003-)
Executive Guest Editor, *Journal of Current Cancer Drug Targets* (2004)
Member, Editorial Board, *Medicinal Chemistry* (2004-)

REVIEWER FOR SCIENTIFIC JOURNALS

Biochemical Pharmacology
Bioorganic and Medicinal Chemistry
Cancer
Cancer Research
Clinical Cancer Research
Clinical Pharmacology and Therapeutics
Current Cancer Drug Targets
Current Pharmaceutical Design
Expert Opinion on Therapeutic Patents
Expert Opinion on Therapeutics
Gene Therapy and Molecular Biology
Journal of Biomolecular Screening
Journal of Clinical Oncology
Journal of Liposome Research
Journal of Pharmaceutical Science
Journal of Pharmacology and Experimental Therapeutics
Molecular Cancer Therapeutics
Molecular Medicine
Oligonucleotides
Oncogene
Pharmaceutical Development and Technology

UNIVERSITY COMMITTEES

1994- Faculty Member, MD/PhD Program, School of Medicine
1995- Clinical Study Review Committee, Comprehensive Cancer Center
1996- Cancer Prevention Working Group, Comprehensive Cancer Center
1996- Lung Cancer Working Group, Comprehensive Cancer Center
1996- Faculty Member, Clinical Investigators Training Program, School of Medicine
1997- Brain Tumor Working Group, Comprehensive Cancer Center
1998- Member, Chemoprevention Center
1999 Judge, UAB Medical Student Research
2000 Reviewer, American Cancer Society Institutional Grants
2000 Reviewer, Junior Faculty Development Grants
2002-2003 Member, Basic Science Advisory Committee, UAB SOM
2002 Judge, Comprehensive Cancer Center Research Competition.
2003 Reviewer, American Cancer Society Institutional Grants

Mentor/Advisor to Trainees

Post-Doctoral Fellows/Visiting Scientists

Proprietary information has been deleted.

Mentor/Committee Member for Graduate/Medical Students

Proprietary information has been deleted.

Laboratory Training for Graduate/Medical Students

Proprietary information has been deleted.

Work-Study Students/Student Assistants

Proprietary information has been deleted.

INVITED PRESENTATIONS/SEMINARS

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|------|---|
| 2004 | UAB Center for Aging and Birmingham/Atlanta VA Geriatric Research, Education and Clinical Center: Oligonucleotide Therapeutics. February |
| 2004 | UAB Department of Environmental Health Sciences: Gene Silencing with Oligonucleotides. June |
| 2003 | Peking Union Medical College and Chinese Academy of Medical Sciences/Cancer Institute/Cancer Hospital: cAMP-dependent Protein Kinase (PKA) and Cancer. October |
| 2003 | Dalian University of Technology: Nucleic Acids Therapeutics. October |
| 2003 | NYU Medical Center: RNA Silencing: Research and Development. August |
| 2003 | Texas Tech University School of Pharmacy: Antisense Oligonucleotide Therapeutics; Are We There Yet? March |
| 2003 | UAB Department of Medicine/Division of Hematology and Oncology: Chemosensitization and Radiosensitization by Antisense Oligonucleotides. March |
| 2002 | NIH 6th Symposium on Oligonucleotide Therapeutics: Chemosensitization and Radiosensitization by Antisense Oligonucleotides. December |
| 2002 | NIH: p53-Dependent and p53-independent activities of MDM2: Antisense approach. September |
| 2001 | NIH: Antisense Anti-MDM2 Oligonucleotide Therapeutics as a New Approach to Human Cancer Therapy: In vitro and In vitro Studies. April |
| 2001 | UAB Department of Medicine/Division of Hematology and Oncology: Antisense Anticancer Therapeutics. April |

- 2001 **UAB Comprehensive Cancer Center:** Translational Research/Cancer Pharmacology. June
- 2001 **UAB Gene Therapy Center:** Antisense Gene Therapy, Birmingham, AL, February.
- 2000 **Chinese Academy of Medical Sciences:** PKA as a Biomarker for Cancer Early Detection. Beijing, China, December.
- 2000 **The Post-Genome Biotechnology Conference,** Hangzhou, China: Antisense Technology, October.
- 2000 **The fourth Life Sciences Symposium,** Beijing, China: Inhibiting MDM2 expression as a novel approach to human cancer therapy, August.
- 2000 **The Annual Meeting of Southeastern Pharmacology Society,** Jackson, MS: MDM2 as a novel target for human cancer therapy, August.
- 2000 **The Fifth World Congress on Advances in Oncology:** Protein Kinase A as a new target for cancer therapy, October.
- 1999 **Baylor College of Medicine:** Antisense Oligonucleotide Therapeutics: Preclinical and Clinical Pharmacology, April.
- 1999 **University of Mississippi:** Antisense Technology: Rationale, Design, and Evaluation. March.
- 1999 **Brown University:** Antisense Gene Therapy, January.
- 1998 **The Annual Meeting of Southeastern Pharmacology Society:** Oligonucleotide Therapeutics; Preclinical and Clinical Pharmacology. Sept.
- 1998 **The Third World Congress on Advances in Oncology:** MDM2 as a new target for cancer therapy, Greece, October.
- 1998 **The 6th Pacific Rim Biotechnology Conference and Bioexpo 98:** Antisense Oligonucleotide Therapeutics: Promises and Pitfalls, June.
- 1997 **Chinese Academy of Medical Sciences:** Visiting Professor Lecture-- Pharmacogenetics: Principles and Applications, Beijing, China, October
- 1997 **Shanghai Medical University (China):** Principles and Practice of Modern Drug Development, Shanghai, China, October.
- 1997 **The First International Symposium on Gene Therapy:** Antisense Oligonucleotides as Gene Expression Modulators, Beijing, China, July.

- 1997 **Chinese Academy of Medical Sciences:** Antisense Oligonucleotides as Gene Expression Modulators: New Generation of Therapeutics? Beijing, China, July.
- 1997 **NIH:** Preclinical and Clinical Pharmacology of Oligonucleotide Therapeutics. NIH, Bethesda, MD, Jan.
- 1996 **UAB Comprehensive Cancer Center:** In Vitro and in Vivo Anti-tumor Activity of Antisense Oligonucleotides Targeted at Protein Kinase A. Oct.
- 1996 **Sino-US Workshop:** Organizing Committee Member and Invited Speaker; A 3-day workshop, Advances in pharmaceuticals: Academic, industrial, and regulatory aspects, Beijing, China, July 7-9. Presentations included:
 1) New Drug Development in USA;
 2) New Drug approval: Preclinical Pharmacology and Toxicology;
 3) Contract Research;
 4) New Biotechnology in Drug Development;
 5) Latest Development in Clinical Trials; and
 6) Gene Therapy.
- 1996 Invited Speaker: **Sino-US workshop, Advances in Clinical Trials.** Shanghai Institute of Planned Parenthood Research, Shanghai, China, September 26-29. Presentations included:
 1) GLP in Preclinical Pharmacology and Toxicology;
 2) Contract Research Organization; and
 3) Comparison of Drug Regulatory System in USA and China.
- 1995 **International Conference “Therapeutic Oligonucleotides From Cell To Man”:** Comparative Pharmacokinetics of Oligonucleotide and Modified Analogs. Seillac, FRANCE, April.
- 1994 **The 6th International Conference on Chronopharmacology and Chronotherapeutics:** Chronobiology of Thymidine Kinase and its Application in Cancer Chemotherapy. Amelia Island, FL, July.

PATENTS

1. **A method for down-regulating gene expression.** (US Patent No 5, 591,721)
2. **Use of 2'-substituted oligonucleotides to down-regulate gene expression.** (European Patent Serial No. 95938213.6)
3. **MDM2-Specific Antisense Oligonucleotides** (US Patent No. 6,013,786)
4. **Methods of down-regulating gene expression.** (US Patent No. 6,608,035)

5. **Down-regulation of gene expression by colorectal administration of synthetic oligonucleotides.** (US patent filed, No. 08/846, 427, 04/30/97)

PUBLICATIONS

FULL-LENGTH PAPERS

1. **Zhang R**, Zhang R-W, Jiang X, Wang Y, Chao X, Wu Y. The background values of chlordimeform and its metabolites in urine of general population. *Occup Med* 1985; 12(4): 7-9
2. Chen Z, **Zhang R**, Qiu J, Pan Z. Effects of occupational lead exposure on workers' health. *Chin J Prevent Med* 1985; 9(4): 216-219
3. Zhang R-W, Zhu G, Liu Z, Yang Y, Qiu J, Sheng Y, **Zhang R**. Spectrophotometric determination of air lead with tetra-(p-trimethylammoniumphenyl) porphyrin. *J Labor Med* 1985; 2(1): 61-63
4. Zhu G, Zhang R, Yang Y, **Zhang R**, Sheng Y, Qiu J, Liu Z. Spectrophotometric determination of urinary lead with tetra-(p-trimethylammoniumphenyl) porphyrin. *J Labor Med* 1985; 2(2): 79-82
5. Tao X, Sun Y, Wang M, Xue S, **Zhang R**, Jiang X, Wang Y. The investigation of health effects on workers exposed to chlordimeform. *Chin J Ind Hyg Occup Dis* 1985; 3(5): 272-274
6. Li F, **Zhang R**, Jiang X, Xue S, Wang Y. Overview on the carcinogenicity, mutation, and teratogenicity of chlordimeform. *Occup Med* 1985; 12(3): 39-42
7. Xue S, **Zhang R**. Overview on sister chromatid exchanges (SCE) as a monitoring index for occupational exposure to chemicals. *J Labor Med* 1985; 2(2): 66-71
8. **Zhang R**, Xue S, Wang Y. Measurement of pesticide contamination on body surface of sprayers through regional and proportional sampling strategy. *Occup Med* 1986; 13(3): 2-4
9. Lin W, **Zhang R**, Gu Z, Wang X, Zhang R-W, Jiang X, Xue S, Wang Y. Urinary chlordimeform and its metabolites as a monitoring index for occupational exposure to chlordimeform. *Occup Hlth Railroad* 1986; 1: 14-17
10. **Zhang R**, Lin W, Wang X, Gu Z, Qiu J, Xue S, Wang Y. Health effects of chlordimeform in exposed sprayers. *Chin J Prevent Med* 1986; 20(3): 186-187
11. Wang X, **Zhang R**, Gu Z, Lin W, Xue S. Occupational chlordimeform poisoning: Case report. *J Labour Med* 1986; 3(2): 9-11
12. Chen Z, Fi H, **Zhang R**, Qiu J, Pan Z. The study of zinc protoporphyrin as a screening index for occupational hazards of lead. *Natl Med J China* 1986; 66(8): 484-487

13. Pan Z, Qiu J, **Zhang R**, Chen Z, Gu J, Xue S, Wang Y. The study of blood lead and free protoporphyrin as screening indices of occupational exposure to lead, an example of application of discriminant analysis. *Chin J Ind Hyg Occup Dis* 1986; 4(3): 144-147
14. Wang M, Zhou Z, Li H, **Zhang R**, Xue S. Risk assessment of occupational exposure to chlordimeform. *Chin J Ind Hyg Occup Dis* 1987; 5(1): 50-53
15. Zhu Q, Liu L, **Zhang R**, Wang Y. Overview on the heme biosynthetic pathway and hemoprotein as indicator of exposure to toxic agents. *Intl Med (Pub Hlth)* 1988; 2: 65-69
16. **Zhang R**, Wang Y, Zhang R, Li H, Jiang X. Urinary formic acid in employees exposed to formaldehyde. *Occup Med* 1988; 15(5): 55-57
17. **Zhang R**, Wang Y, Li H, Jiang X. Monitoring of urinary formic acid in formaldehyde exposed workers. *Railway Occup Safety Hlth Environ Protect* 1988; 4: 50-53
18. **Zhang R**, Jiang X. Hepatotoxicity of formaldehyde. *J Hlth Toxicol* 1988; 3(2): 18-22
19. **Zhang R**, Li H, Zhang RW, Jiang X. Study of the applicability of urinary formic acid as a biological monitoring indicator for formaldehyde exposure. In: Xue S and Liang Y (eds): *Occupational Health in Industrialization and Modernization*, Shanghai Medical University Press, 1988: pp. 128-131
20. **Zhang R**, Jiang X. A preliminary report on the analysis of malignant mortality among faculty members and staff in departments of anatomy of medical schools in Shanghai. In: Xue S and Liang Y (eds): *Occupational Health in Industrialization and Modernization*, Shanghai Medical University Press, 1988: pp. 89-90
21. Jiang X, **Zhang R**. The studies on potential risk of occupational exposure to formaldehyde. In: Xue S and Liang Y (eds): *Occupational Health in Industrialization and Modernization*, Shanghai Medical University Press, 1988; pp. 70-74
22. Xue S, Wang M, Jiang X, Li F, **Zhang R**, Zhou Z, Gu X. Risk assessment of Occupational exposure to chlordimeform. In: Xue S and Liang Y (eds): *Occupational Health in Industrialization and Modernization*, Shanghai Medical University Press, 1988; pp. 34-36
23. Wang Y, **Zhang R**, Jiang X. Inhalation of formaldehyde: toxicology, epidemiology, and control. *Occup Med* 1989; 16(2): 40-44
24. Yu J, Qiu J, **Zhang R**, Xue S. The determination of serum monoamine oxidase activity and its application in exposure assessing for chlordimeform. *Chin J Ind Hyg Occup Dis* 1989; 7(2): 10-12
25. Jiang X, **Zhang R**. Survival effects in cross-section study. *J Labour Med* 1989; 6(1): 1-4
26. **Zhang R**, Jiang X, Pan X. Effects on erythrocytes membrane fluidity of formaldehyde and its metabolites, formic acid. *J Hlth Toxicol* 1989; 4(2): 8-11

27. **Zhang R**, Jiang X. Work-related diseases among employees exposed to formaldehyde. *Chin J Ind Hyg Occup Dis* 1989; 7(5): 284-289
28. **Zhang, R**. Toxicity of pesticide. In: Gong Z et al (eds): *Occupational Health and Safety*, Shanghai Labour Press, Shanghai, 1989
29. **Zhang R**, Wang Y, Jiang X. Metabolism of formaldehyde in erythrocyte and hepatocyte. *J Hlth Toxicol* 1990; 4(1): 7-9
30. Jiang X, **Zhang R**, Lu P, Wang Y, Gu X. Cancer mortality among workers exposed to formaldehyde. *Chin J Ind Hyg Occup Dis* 1990; 8(5): 261-264
31. **Zhang R**, Jiang X, Wu Y. Hepatotoxicity of formaldehyde observed in perfused mice livers and in culture of rat hepatocyte. *Acta Academiae Medicinae Shanghai* 1990; 17(2): 149-152
32. Jiang X, **Zhang R**, Wang Y, Yuan J. Pulmonary effects of chronic exposure to formaldehyde. *Chin Ind Med* 1990; 3: 12-15
33. Daher GC, Harris BE, **Zhang R**, Willard EM, Soong S-j, Diasio RB. The role of dihydropyrimidine dehydrogenase (DPD) and thymidine phosphorylase (dThdPase) in the circadian variation of plasma drug levels of 5-fluorouracil (FUra) and 5-fluoro-2'-deoxyuridine (FdUrd) following infusion of FUra and FdUrd. *Ann Rev Chronopharm* 1990: 227-230
34. Daher GC, **Zhang R**, Soong S-j, Diasio RB. Circadian variation of pyrimidine catabolizing enzymes in rat liver: Possible relevance to 5-fluorodeoxyuridine chemotherapy. *Drug Metab Disp* 1991; 19 (1): 285-287
35. Daher GC, Nagib FNM, el Kouni MH, **Zhang R**, Soong S-j, Diasio RB. Inhibition of fluoropyrimidine catabolism by benzyloxybenzyluracil: possible relevance to regional chemotherapy. *Biochem Pharm* 1991; 41(12): 1887-1893
36. **Zhang R**, Barnes S, Diasio RB. Disposition and metabolism of 2-fluoro- β -alanine conjugates of bile acids following secretion into bile. *Biochim Biophys Acta* 1991; 1096: 179-186
37. **Zhang R**, Soong S-j, Liu T, Barnes S, Diasio RB. Pharmacokinetics and tissue distribution of 2-fluoro- β -alanine: Possible relevance to toxicity pattern of 5-fluorouracil. *Drug Metab Disp* 1992; 20 (1): 113-119
38. **Zhang R**, Barnes S, Diasio RB. Differential intestinal deconjugation of taurine-and glycine-conjugated bile acid N-acyl amidates in rats. *Am J Physiol* 1992; 262: G351-G358
39. Lu Z, **Zhang R**, Diasio RB. Purification and characterization of dihydropyrimidine dehydrogenase from human liver. *J Biol Chem* 1992; 267 (24): 17102-17109

40. **Zhang R**, Lu Z, Liu T, Soong S-j, Diasio RB. Circadian rhythm of rat spleen cytoplasmic thymidine kinase. *Biochem Pharm* 1993; 45 (5): 1115-1119
41. **Zhang R**, Liu T, Soong S-j, Diasio RB. A mathematical model of kinetics and disposition of 2-fluoro- β -alanine, the major metabolite of 5-fluorouracil. *Biochem Pharm* 1993; 45 (10): 2063-2069
42. **Zhang R**, Lu Z, Liu T, Soong S-j, Diasio RB. Relationship between circadian-dependent toxicity of 5-fluorodeoxyuridine and circadian rhythms of pyrimidine enzymes. Possible relevance to fluoropyrimidine chemotherapy. *Cancer Res* 1993; 53: 2816-2822
43. **Zhang R**, Lu Z, Diasio, CR, Liu T, Soong S-j. The time of administration of 3'-azido-3'-deoxythymidine (AZT) determines its host toxicity with possible relevance to AZT chemotherapy. *Antimicrob Agents Chemother* 1993; 37 (9): 1771-1776
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